

## THE MANY SIDES OF POLYNESIAN ARCHAEOLOGY IN REFERENCE TO THE COLONIZATION PROCESS IN SOUTHEAST POLYNESIA

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Polynesian archaeology is undergoing a renaissance with spirited debates on a number of fundamental issues such as dating human colonization of islands and archipelagoes, determining the causes of landscape change (whether human-induced, climate affected, or some manner of both), defining the temporal and geographical limits of long-distance interaction spheres, the causes and consequences of socio-political change, and the nature of Ancestral Polynesian Culture. None of these topics engender a discipline-wide consensus, least of which is the date for the colonization of any Polynesian archipelago. A recent review of Polynesian archaeology (Kirch & Kahn 2007) cataloged more than 500 citations since a similar inventory a decade earlier (Kirch & Weisler 1994) with opinions weighing up on both sides of each of these and other issues. In a 2007 article entitled "Credit Where Credit is Due: The History of the Chumash Oceangoing Plank Canoe" in *American Antiquity* (72:196-209), Jeanne Arnold selected only one side of a contentious colonization debate to discount the possibility of Polynesians influencing the development of the Chumash ocean-going plank canoe and asked the question: Could Polynesians have possibly reached southern California before 500 CE? Arguing for the negative, she states "Many regional experts now view dates before A.D. 900 in Hawaii as barely tenable or untenable" (Arnold 2007:203). Citing the recent work of Hunt and Lipo (2006) on Rapa Nui, she then continues, "The same kinds of rigorous reanalyses of radiocarbon dates, stratigraphic sequences, and assemblages have engendered a similar conclusion in an independent data set"; that is, late colonization of East Polynesia. We do not take sides here on whether or not Polynesians made it to California during prehistory (see Klar & Jones, THIS ISSUE). Rather, we point out that Arnold's choice of Rapa Nui as an exemplar of late colonization that "has important consequences for our Chumash case" (2007: 203), is not the best island to choose for strengthening her position.

Hunt and Lipo (2006) argue from their own investigations at one of many locations that have now been investigated in 'Anakena, Rapa Nui, that colonization was not until about 1200 CE. They arrived at this conclusion by: (1) examining previous radiocarbon age determinations and rejecting dates from marine materials or terrestrial animal bone, samples composed of mixed charcoal and soil, and single radiocarbon dates not replicated with overlap at two standard deviations from the

same archaeological context (Hunt & Lipo 2006:1605); and (2) reporting eight new radiocarbon dates on "short-lived" charcoal from the earliest stratigraphic layers of a new locality within 'Anakena not previously excavated; that is, their excavations were situated in a general environmental setting conducive for early colonization. The highest calibrated probabilities of these new dates are around the 13th century (Hunt & Lipo 2006:1603). While we could argue about the merits of their review and rejection of some of the oldest radiocarbon dates for Rapa Nui (Martinsson-Wallin & Crockford 2002), what is less controversial is the current dating for Mangareva and the Pitcairn Group and the related claim of its compatibility with a date of 1200 CE for Rapa Nui. These islands are, on all evidence to date, the source of the founding population for Rapa Nui based on geographic position, radiocarbon dates, linguistics, material culture, introduced flora and fauna, physical anthropology, and voyaging feasibility (Flenley & Bahn 2003:58; Green 2000; Irwin 1992).

Based on our brief review of colonization dates for Mangareva and the Pitcairn Group below, we disagree with Hunt and Lipo that "a date of about 1200 A.D. for the colonization of Rapa Nui fits well with the evidence that has emerged for colonization from elsewhere in the southeastern Pacific" (2006:1605, *emphasis ours*). Our review also underscores the need to examine colonization dates at the regional level (Weisler 1998a), especially when it relates to the probable source of colonists that founded Rapa Nui.

### THE REGIONAL CONTEXT OF RAPA NUI COLONIZATION

The Mangarevan or Gambier group of islands is situated about 1300 nautical miles west from the solitary habitable island of Rapa Nui. This volcanic island group consists of four relatively large volcanic islands and 22 small islands and coral islets (25 km<sup>2</sup> total land area) surrounding a lagoon. About 100 m<sup>2</sup> was excavated at several sites on the four largest islands since Green's pioneering work there in 1959 (Green & Weisler 2000). Extensive island-wide surveys (Weisler 1996) and modern excavations (Conte & Kirch, eds. 2004) have documented a culture-historical sequence beginning at least by cal 1000 CE (Conte & Kirch 2008:256; Kirch & Conte 2004:152; Kirch, *et al.* 2004:98). One of several early dates came from the Onemea site (Weisler 1996:73) where, from Layer III, a dated seabird long-bone shaft (Procellariidae,

probably petrel) was recovered 103 cm below the surface in a context associated with the Polynesian introduced snail (*Allopeas gracile*) and two fire-altered volcanic stones (Kirch, *et al.* 2004:102-104). This dated bird bone had a conventional  $^{14}\text{C}$  age of  $1380 \pm 40$  (Beta-190114, Kirch, *et al.* 2004:98). The reported age at  $1\sigma$  is 1000-1050 CE using a  $\Delta R$  of  $0 \pm 0$  (Kirch, *et al.* 2004:97). The  $\delta^{13}\text{C}$  of the sample is  $-12.2\%$  and consistent with a marine diet, therefore a  $\Delta R$  of  $1 \pm 18$  (Petchey, *et al. in press*) was employed here as indicative of Mangareva. The conventional  $^{14}\text{C}$  age using this  $\Delta R$  is cal 972-1072 ce at  $1\sigma$ . Earlier colonization dates may yet be obtained at Rikitea village where some of the best-watered arable land with easy access to the lagoon is situated in the sheltered lee of Mangareva Island (Weisler 1996:70). Therefore the *process* of colonization — which is not an “event” as stated by Hunt and Lipo (2006:1605) — may have begun a century or so before 1000 CE.

Mangareva was part of an interaction sphere (Weisler 1995; Weisler & Woodhead 1995) that included the Pitcairn Group — situated about 400 km east — as well as the Marquesas, Societies, and Tuamotus (Collerson & Weisler 2007; Weisler 1998b, 2002, 2008). Volcanic artefacts from Mangareva have been recovered from Henderson Island from contexts dated to the 11th - 12th centuries CE (Weisler 1997). Henderson, a raised limestone (*makatea*) island in the Pitcairn Group, was visited as early as the 10th century CE and three charcoal dates predate or overlap cal 1050 CE at  $1\sigma$  (Beta-45596 at 899-919 CE and 949-1020; Beta-45603 at 1040-1162 CE; Beta-59005 at 1045-1088 CE and 1105-1214; Weisler 1995). Although the wood charcoal was not identified to species, the possibility of inbuilt age can be discounted (Weisler 1998a:77-79). A date of  $1295 \pm 50$  (OxA-5454) from a humanly modified extinct pigeon bone within a dense black cultural deposit (layer IIC) from the largest coastal midden may date earlier use of Henderson (Weisler 1998a:84; Wragg 1995:98); the later end of this calibration fits within the 9th century. If, as Hunt and Lipo opine, “Polynesian ‘supertramp’ populations expanded their numbers over the vast Pacific in a remarkably short time” (2006:1605, *emphasis ours*), why did it take at least two centuries for people on Mangareva and the Pitcairn Group to find and then settle Rapa Nui when the inhabitants of Mangareva were already in regular two way contact over 216 nautical miles to the east with their Pitcairn-Henderson Island group neighbors from 1000 to 1400 CE (Weisler & Green 2001:437-38). Voyages of another 1,100 sea miles east to Rapa Nui of some two to three weeks duration in seasonally favorable winds would easily suffice to make that the next landfall without undue delay. In short, considered in the regional perspective of southeast Polynesia, this “two century pause” is anomalous in reference to the “explosive” settlement of the rest of East Polynesia (Irwin 1992) and we suggest that earlier cultural deposits exist on Rapa Nui. For example, the earlier date of 1050 CE in the tail of Fig. 2 (Hunt & Lipo 2006:1605) fits well with the suite of dates from Mangareva and the Pitcairn Group. Additionally some “rejected” early radiocarbon age determinations for Rapa Nui

do, in fact, accurately date pre-CE 1200 deposits, especially if the current  $\Delta R$  of  $-113 \pm 18$  (Reimer & Reimer 2001) for “rejected” dates on bone for marine feeding animals in the earliest site locality so far investigated in ‘Anakena is applied to each such date and paired with the existing charcoal and coral dates (Steadman, *et al.* 1994; Martinsson-Wallin & Crockford 2002; Beck, *et al.* 2003). Even one of the strong supporters for a generally late colonization scenario throughout East Polynesia cites the earliest known settlement of ‘Anakena as dating to cal 1000 CE (Anderson 2006:275). This assessment is fully compatible with that of Vargas, *et al.* (2006:403) who find there is no data from Rapa Nui at present to sustain an initial settlement more ancient than *c.* 800 CE nor for one judged to be later than *c.* 1000 CE. They base their evaluation on a detailed examination of their 1991 excavations at ‘Anakena and the fine detail of its stratigraphic record, radiocarbon age determinations, fauna, cultural artifacts, their re-investigations of the Poike “Ditch” feature, and their more general overview of all other well-dated sites investigated by others on that island (Vargas 2006:318-335, 385-392, and 396-403). Thus it is only by citing Hunt and Lipo, while neglecting other “regional experts” who do not accept Rapa Nui was colonized after 1200 CE, that Arnold’s argument appears sound. Yet, Hunt and Lipo in fact document  $^{14}\text{C}$  determinations they view as acceptable under their stringent protocols, but go on to eliminate those dates that make a peak prior to 1200 CE through a smoothing routine used to remove them from further consideration as indicators of habitation given their possession of a lower degree of statistical likelihood (Hunt & Lipo 2006: Fig. 2).

Consequently, we agree with Arnold that the “revolutionary reevaluation” for eastern Polynesian settlement dates does have “important consequences for the Chumash case”. But, conversely, based on colonization dates for many East Polynesian archipelagoes (see Athens 1997; Carson 2005; or Kirch 2007:11 in support of 800 CE for Hawai‘i, and Allen 2004 of 700-800 CE for the Marquesas), researchers, whether from a Polynesian perspective or viewing the problem from the Americas, are simply not yet in a position to rule out contact with central East Polynesia during the development of the Chumash oceangoing plank canoe. As Jones and Klar (2006:765-66; see also Klar & Jones, THIS ISSUE) aver, their current window of about 400-800 CE for the timing of the appearance of the sewn-plank canoe technology in southern California is just within a similar window 700-800 CE which we hold applies to the Society Islands, the Marquesas, and Hawai‘i.

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